APC
by Schneider Electric

Operation Manual

Smart-UPS® C

Uninterruptible Power Supply

1000/1500 VA Tower
120 Vac

This manual is available in English on the enclosed CD.

Este manual está disponible en español en el CD-ROM adjunto.

Ce manuel est disponible en français sur le CD-ROM ci-inclus.

Product Description

The APC® by Schneider Electric Smart-UPS® 1000/1500 VA Tower is a high performance uninterruptible power supply (UPS). It provides protection for electronic equipment from utility power blackouts, brownouts, sags, and surges, small utility fluctuations and large disturbances. The UPS also provides battery backup power for connected equipment until utility power returns to safe levels or the batteries are fully discharged.

Safety and General Information

Read the Safety Guide included in the package before installing the UPS.

This unit is intended for indoor use only.

Do not operate this unit in direct sunlight, in contact with fluids, or where there is excessive dust or humidity.

Be sure the air vents on the UPS are not blocked. Allow adequate space for proper ventilation.

The battery typically lasts for two to five years. Environmental factors impact battery life. Elevated ambient temperatures, poor quality utility power, and frequent short duration discharges will shorten battery life.

Connect the Smart-UPS power cable directly to a wall outlet. Do not use surge protectors or extension cords.

The batteries are heavy. Remove the batteries prior to installing the UPS in a rack.

Specifications

For additional specifications, refer to the APC Web site at www.apc.com.

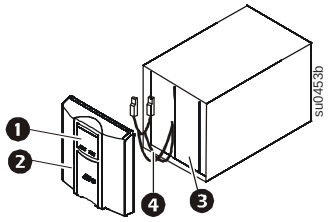
Environmental

Temperature	**Operating**	0° to 40° C (32° to 104° F)
	Storage	-15° to 45° C (5° to 113° F) charge UPS battery every six months
Maximum Elevation	**Operating**	3,000 m (10,000 ft)
	Storage	15,000 m (50,000 ft)
Humidity	0% to 95% relative humidity, non-condensing	

Product Overview

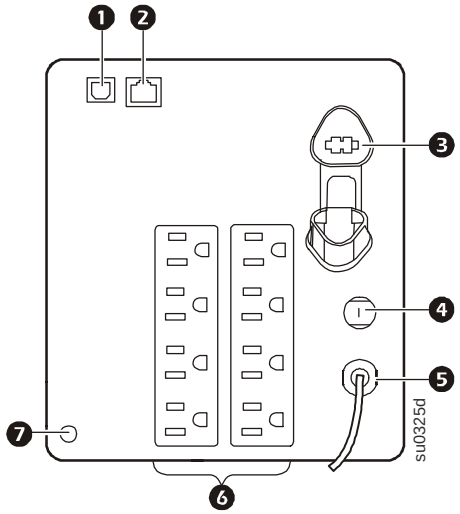
Front panel features

1. Display interface
2. Bezel
3. Battery
4. Internal battery connector



Rear panel features

1. USB Port
2. Serial data port
3. Battery connector
4. Circuit breaker
5. UPS input
6. Outlets
7. Ground screw



Installation

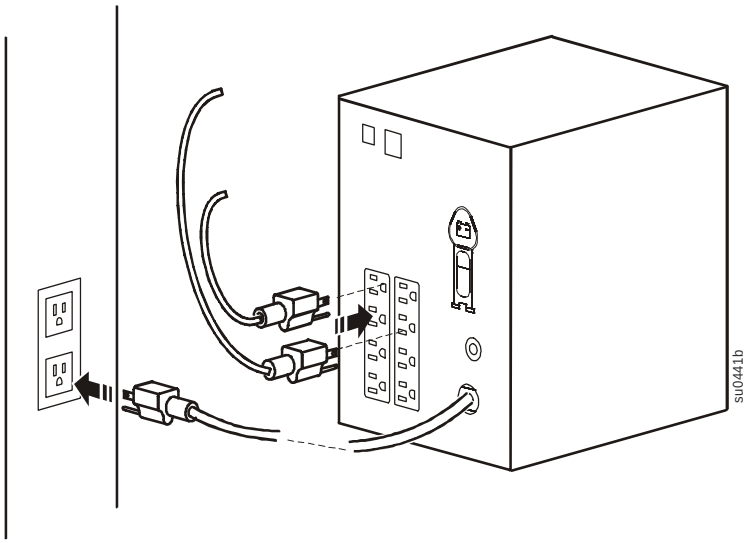
For UPS installation information, refer to the Smart-UPS Installation Guide 1000/1500 VA 120 Vac Tower, that is included with the UPS. The Quick Start guide is also available on the documentation CD included with the UPS and on the APC Web site, www.apc.com.

Operation

Connect Equipment to the UPS

Note: The UPS will charge to 90% capacity in the first three hours of normal operation. **Do not expect full battery runtime capability during this initial charge period.**

1. Connect equipment to the UPS.
2. Connect the UPS to the building utility power. **Connect the UPS to a two-pole, three-wire, grounded source only.**



USB port: Connect to a computer to use power management software.

Serial port: Connect a serial port cable (not supplied) to use power management software.

Ground Screw: Connect the ground leads on transient voltage devices to the chassis ground screw(s), located on the rear panel of the UPS.

Power-Saving LCD Screen

The display interface can be configured to remain continuously illuminated or to extinguish after a period of inactivity to save electricity.

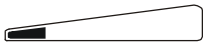
1. **Continuous Illumination mode**: Press and hold the DISPLAY button for two seconds. The display will illuminate and the UPS will beep to confirm **Continuous Illumination** mode is activated.
2. **Power-Saving mode**: Press and hold the DISPLAY button for two seconds. The display will extinguish and the UPS will beep to confirm **Power-Saving** mode is activated. While in **Power-Saving** mode, the display will illuminate if a button is pressed, it will extinguish after 60 seconds of inactivity.

Smart-UPS sensitivity settings

The Smart-UPS detects and reacts to line voltage distortions by transferring to battery power to protect connected equipment. In situations where either the UPS or the connected equipment is too sensitive for the input voltage level it is necessary to adjust the transfer voltage.

1. Connect the UPS to a utility power source. Be sure the UPS is turned off.
2. Press and hold the POWER button for six seconds. The **load capacity** bar will flash on and off, to indicate the UPS is in **Program** mode.
3. Press the POWER button again to scroll through the menu options. The UPS will beep to confirm the selection.

   Refer to the table for an explanation of the transfer voltage sensitivity levels.



Low sensitivity
97-136 Vac

Use this setting with equipment that is less sensitive to fluctuations in voltage or waveform distortions.

Medium sensitivity
103-130 Vac

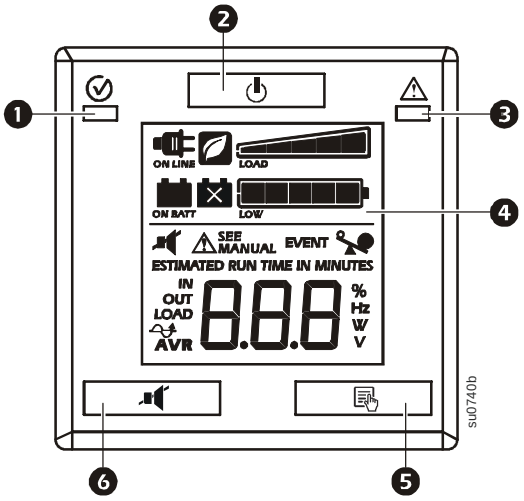
Use this setting under normal operating conditions.

High sensitivity (Default)
106-127 Vac

Use this setting when connected equipment is sensitive to any minor fluctuations in voltage or waveform distortions.

Status Indicators

Front panel buttons and display



1. **Online/On Battery** LED
2. POWER ON/OFF button
3. **Site Wiring/System Fault** LED
4. Display interface
5. DISPLAY button
6. MUTE button

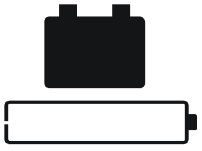
Note: Refer to “Feature Quick-Reference” on page 7 for a detailed description of the front panel buttons.

ON LINE	**On Line:** The UPS is supplying conditioned utility power to connected equipment.
	Green mode: The UPS is operating at the most efficient level by bypassing unused AVR components while acceptable utility voltage is present. The UPS will enter and exit **Green** mode automatically and will not compromise power protection.
	Load Capacity: The load capacity percentage is indicated by the number of load bar sections illuminated. Each bar represents 20% of the load capacity.
ESTIMATED RUN TIME IN MINUTES	**Estimated Run Time:** This indicates the battery runtime minutes that remain if the UPS switches to battery power.
	Battery Charge: The battery charge level is indicated by the number of load bar sections illuminated. When all five blocks are illuminated, the battery is fully charged. Each bar represents 20% of the battery charge capacity.
	Overload: The equipment connected to the UPS is drawing more power than the voltage rating allows.
EVENT	**Event:** The event counter indicates the number of events that occurred to cause the UPS to switch to battery operation.
AVR	**Automatic Voltage Regulation (AVR):** The UPS has an AVR boost feature that automatically regulates low levels of input voltage without using battery power. When illuminated, the UPS is compensating for low input voltage.
IN OUT	**In:** Input voltage. **Out:** Output voltage.
SEE MANUAL	**System Faults:** An internal system fault has occurred. The fault number will illuminate on the display. Refer to “System Faults” on page 6.
	Mute: An illuminated line through the icon indicates that the audible alarm is disabled.
	Replace Battery: The battery is nearing the end of its service life. Replace the battery.
	On Battery: The UPS is supplying battery backup power to the connected equipment.

LED status indicators

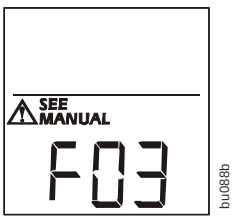
Status	LED	Audible Indicator On	Audible Indicator Terminates
Power On The UPS is supplying utility power to connected equipment.	The **Online** LED illuminates green.	None	N/A
On Battery The UPS is supplying battery power from the internal battery pack.	The **Online** LED illuminates amber.	The UPS beeps 4 times every 30 seconds.	The beeping stops when utility power is restored or the MUTE button is pressed for 2 seconds.
System Fault The UPS detects an internal system fault.	**System Fault** LED illuminates red.	Constant tone	The alarm stops when the POWER ON/OFF button is pressed for 2 seconds to trigger a **Fault Reset**.
Site Wiring Fault The building wiring presents a shock hazard that must be corrected by a qualified electrical.	**Site Wiring Fault** LED flashes red**.**	None	N/A

LCD status indicators

Status	LCD Icon	Audible Alarms	Audible Alarm Terminates
On Battery The UPS is supplying battery power to the connected equipment.		Beeps 4 times every 30 seconds.	The beeping stops when utility power is restored or the UPS is turned off.
Utility Power Overload An overload condition has occurred while the UPS is operating on utility power.		Constant tone	The alarm stops when nonessential equipment is disconnected from the outlets or the UPS is turned off
Battery Power Overload An overload condition has occurred while the UPS is operating on battery power.		Constant tone	The alarm stops when nonessential equipment is disconnected from the outlets or the UPS is turned off.
Low Battery The UPS is supplying battery power to the connected equipment and the battery is near a total discharge state.		Continuous beeping	The beeping stops when utility power is restored or the UPS is turned off.
Battery Fault The UPS is operating on utility power, but the battery is not functioning properly. The battery has reached the end of its useful life.		N/A	Replace the battery.
System Fault The UPS has experienced an internal fault.		N/A	Identify the fault message on the display and refer to “System Faults” .

System Faults

The Smart-UPS will display a fault message in the event of an internal system fault.



F01	Output Short Circuit
F02	Output Overload
F03	AVR Relay Weld
F04	Output Over Voltage
F05	Unit Over Temperature
F06	Inverter

Feature Quick-Reference

Function	Button	Timing (seconds)	UPS Status	Description
Power				
POWER ON		0.2	Off	Press the POWER ON/OFF button to turn on the UPS and operate on utility power. If utility input power is not available the UPS will operate on battery power.
POWER OFF		2	On	Press the POWER ON/OFF button to turn off the UPS.
Display				
Status Inquiry		0.2	On	Verify the status or condition of the UPS. The LCD will illuminate for 60 seconds.
Continuous Illumination/ Power-Saving mode		2	On	The LCD will illuminate and the UPS will beep to confirm **Continuous Illumination** mode is activated. The LCD will extinguish and the UPS will beep to confirm that **Power-Saving** mode is activated. While in **Power-Saving** mode, the LCD will illuminate if a button is pressed, then extinguish after 60 seconds of no activity.
Mute				
Event Specific		0.2	On	Disable any audible alarms caused by an event.
General Status Enable/Disable		2	On	Enable or disable the audible alarms. The **Mute** icon will illuminate and the UPS will beep one time. The **Mute** feature will not activate unless the UPS is operating on battery power.
Sensitivity		6	Off	The **Load Capacity** icon will flash to indicate the UPS is in **Program** mode. Use the POWER ON/OFF button to scroll through and select Low, Medium, and High sensitivity levels. The UPS will beep to confirm the selection. Refer to “Smart-UPS sensitivity settings” on page 4 for details.
Self-Test		6	On	The UPS will run a test of the internal battery. **Note:** This will happen automatically when the UPS is turned ON.
Event Reset		0.2	On	When the **Event** screen is visible, press and hold DISPLAY, then press the POWER button to clear the utility failure event counter.
Fault Reset		2	Fault	After a fault has been identified, press the POWER ON/OFF button to remove the visual indication and return to standby status.

Troubleshooting

Problem and Possible Cause	Solution
The UPS will not turn on or there is no output.	
The unit has not been turned on.	Press the POWER button once to turn on the UPS.
The UPS is not connected to utility power.	Be sure the power cable is securely connected to the unit and to the utility power supply.
The input circuit breaker has tripped.	Reduce the load on the UPS. Disconnect nonessential equipment and reset the circuit breaker.
The unit shows very low or no input utility voltage.	Check the utility power supply to the UPS by plugging in a table lamp. If the light is very dim, check the utility voltage.
The battery connector plug is not securely connected.	Be sure that all battery connections are secure.
There is an internal UPS fault.	Do not attempt to use the UPS. Unplug the UPS and have it serviced immediately.
The UPS is operating on battery, while connected to input utility power.	
The input circuit breaker has tripped.	Reduce the load on the UPS. Disconnect nonessential equipment and reset the circuit breaker.
There is very high, very low, or distorted input line voltage.	Move the UPS to a different outlet on a different circuit. Test the input voltage with the utility voltage display. If acceptable to the connected equipment, reduce the UPS sensitivity.
UPS is emitting an audible beeping sound.	
The UPS is operating normally.	None. The UPS is protecting the connected equipment.
UPS does not provide expected backup time.	
The UPS battery is weak due to a recent power outage or is near the end of its service life.	Charge the battery. Batteries require recharging after extended outages and wear out faster when put into service often or when operated at elevated temperatures. If the battery is near the end of its service life, consider replacing the battery even if the replace battery indicator has not illuminated.
The UPS is experiencing an overload condition.	Check the UPS load display. Unplug unnecessary equipment, such as printers.
The replace battery icon in the display interface is illuminated.	
The battery has a weak charge.	Allow the battery to recharge for at least four hours. Then, perform a self-test. If the problem persists after recharging, replace the battery.
The replacement battery is not properly connected.	Be sure that the battery connector is securely connected.
The System Fault LED is illuminated.	
Internal UPS fault.	Do not attempt to use the UPS. Turn the UPS off and have it serviced immediately.
The Site Wiring LED is flashing.	
Wiring faults detected include missing ground, hot-neutral, polarity reversal, and overloaded neutral circuit.	If the UPS indicates a site wiring fault, have a qualified electrician inspect the building wiring.

Service

If the unit requires service, do not return it to the dealer. Follow these steps:

1. Review the *Troubleshooting* section of the manual to eliminate common problems.
2. If the problem persists, contact APC Customer Support through the APC Web site, **www.apc.com**.
    a. Note the model number and serial number and the date of purchase. The model and serial numbers are located on the rear panel of the unit and are available through the LCD display on select models.
    b. Call APC Customer Support and a technician will attempt to solve the problem over the phone. If this is not possible, the technician will issue a Returned Material Authorization Number (RMA#).
    c. If the unit is under warranty, the repairs are free.
    d. Service procedures and returns may vary internationally. Refer to the APC Web site for country specific instructions.
3. Pack the unit properly to avoid damage in transit. Never use foam beads for packaging. Damage sustained in transit is not covered under warranty.
    a. **Always DISCONNECT THE UPS BATTERY before shipping in compliance with U.S. Department of Transportation (DOT) and IATA regulations.** The battery may remain in the unit.
    b. Internal batteries may remain connected in the XLBP during shipment, if applicable, not all units have XLBPs.
4. Write the RMA# provided by Customer Support on the outside of the package.
5. Return the unit by insured, pre-paid carrier to the address provided by Customer Support.

Transport the unit

1. Shut down and disconnect all connected equipment.
2. Disconnect the unit from utility power.
3. Disconnect all internal and external batteries (if applicable).
4. Follow the shipping instructions outlined in the *Service* section of this manual.

Two-Year Factory Warranty

This warranty applies only to the products you purchase for your use in accordance with this manual.

Terms of warranty

APC warrants its products to be free from defects in materials and workmanship for a period of two years from the date of purchase. APC will repair or replace defective products covered by this warranty. This warranty does not apply to equipment that has been damaged by accident, negligence or misapplication or has been altered or modified in any way. Repair or replacement of a defective product or part thereof does not extend the original warranty period. Any parts furnished under this warranty may be new or factory-remanufactured.

Non-transferable warranty

This warranty extends only to the original purchaser who must have properly registered the product. The product may be registered at the APC Web site, **www.apc.com**.

Exclusions

APC shall not be liable under the warranty if its testing and examination disclose that the alleged defect in the product does not exist or was caused by end user's or any third person's misuse, negligence, improper installation or testing. Further, APC shall not be liable under the warranty for unauthorized attempts to repair or modify wrong or inadequate electrical voltage or connection, inappropriate on-site operation conditions, corrosive atmosphere, repair, installation, exposure to the elements, Acts of God, fire, theft, or installation contrary to APC recommendations or specifications or in any event if the APC serial number has been altered, defaced, or removed, or any other cause beyond the range of the intended use.

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Warranty claims

Customers with warranty claims issues may access the APC customer support network through the Support page of the APC Web site, **www.apc.com/support**. Select your country from the country selection pull-down menu at the top of the Web page. Select the Support tab to obtain contact information for customer support in your region.

APC Worldwide Customer Support

Customer support for this or any other APC product is available at no charge in any of the following ways:

- Visit the APC Web site to access documents in the APC Knowledge Base and to submit customer support requests.
  - **www.apc.com** (Corporate Headquarters)
    Connect to localized APC Web sites for specific countries, each of which provides customer support information.
  - **www.apc.com/support/**
    Global support searching APC Knowledge Base and using e-support.
- Contact the APC Customer Support Center by telephone or e-mail.
  - Local, country-specific centers: go to **www.apc.com/support/contact** for contact information.

For information on how to obtain local customer support, contact the APC representative or other distributors from whom you purchased your APC product.

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